

REMARKS

The Official Action dated February 25, 2005, has been carefully considered. Applicants appreciate the Examiner's thorough review of the application. Consideration of the changes and remarks presented herein and reconsideration of the objections and rejections are respectfully requested.

By present amendment, claims 1, 4-7, 26 and 30 have been amended herein. Support for the amendments can be found in the specification, claims and drawings as originally filed, for example in the specification at page 1, lines 13-14. Claims 3, 8-25, 27-29 and 31-32 have been canceled. It is believed that these changes do not involve any introduction of new matter, whereby entry is believed to be in order and is respectfully requested. Accordingly, claims 1-2, 4-7, 26 and 30 remain in this application. As set forth below, it is believed that claims 1-2, 4-7, 26 and 30 are in condition for allowance.

In the Official Action, the Examiner maintained his restriction requirement and made it final. Although Applicants do not believe this restriction requirement is proper, and have traversed the rejection, for purposes of expediting prosecution Applicants have canceled claims 8-20, 22-25 and 31-32, and, as such, Applicants believe this rejection is now moot and respectfully request reconsideration.

In the Official Action, the Examiner rejects claims 1-7, 26, 27 and 30 under 35 U.S.C. § 112, first paragraph, arguing that they fail to comply with the written description requirement. In light of the amendments and remarks provided below, Applicants believe this rejection has been overcome and respectfully request reconsideration.

The Examiner contends that the expressions "furnace exhaust material" (FEM) and "post combustion material" (PCM) are not clearly defined and that it is unclear as to how these materials relate to each other. However, the specification is clear as to the relationship

between FEM and PCM. The FEM is generated from the exhaust of the steel making process. The portion of the FEM that is too heavy or too large to be exhausted to a bag house and falls into the drop out box and is called the post combustion material (See Specification at p. 1, lines 11-13). It is the post combustion material that is then recycled into the steel making process. If the language of the claim is such that a person of ordinary skill in the art can interpret it, the language complies with 35 U.S.C. § 112, first paragraph. MPEP §2173. The meaning of PCM and FEM is consistently used in the specification and clearly provided for the understanding of those of ordinary skill in the art. Moreover, Applicants have previously provided support (IDS submitted on February 4, 2004, article entitled, Iron and Steel Scrap) which illustrates the EPA's use of the term drop out box in relation to electric arc furnace systems. Accordingly, it is respectfully requested that the rejection be reconsidered and withdrawn.

As such, Applicants believe that the claimed steel processing materials as defined by claims 1-2, 4-7, 26 and 30 are sufficiently taught such that the written description requirements are satisfactorily met and that one having ordinary skill in the art could reasonably convey that the Applicants had possession of the claimed invention. Therefore, the rejections under 35 U.S.C. §112, first paragraph, have been overcome. Reconsideration is respectfully requested.

In the Official Action, the Examiner rejects claims 1-7, 26, 27 and 30 under 35 U.S.C. § 103(a) as being unpatentable over Calderon et al (U.S. Patent No. 6,214,085) in view of Lehner et al (U.S. Patent No. 5,853,453) or in further view of Maeda (U.S. Patent No. 4,134,755). The Examiner asserts that Calderon et al disclose a method for direct steelmaking including the step of pneumatically injecting a fluxed iron/carbon product with immediate foaming of the slag, where the iron/carbon product having been made by mixing

iron ore concentrate, coal and dolomitic limestone. Moreover, the Examiner asserts that Calderon et al disclose a material feeding system which feeds these materials having iron ore into a hopper, and where the materials may be dried prior to delivery to the hopper. The Examiner notes that Calderon et al do not expressly disclose the concentrations of the coal and flux, such as dolomite in the fluxed iron/carbon product, but contends that it would be obvious to modify the composition in order to achieve immediate foaming with in the furnace. The Examiner notes also that Calderon et al do not disclose the water content of a mixture but contends that Lehner et al disclose dehydrated granules formed from sludge which may contain a residual moisture having a maximum of 5 weight percent. Finally, the Examiner asserts that Maeda discloses that sorting dust is conventional.

As will be set forth in detail below, it is submitted that the steel processing materials of claims 1-2, 4-7, 26 and 30 are non-obvious and patentably distinguishable from the teachings of Calderon et al in view of Lehner et al together or in further view of Maeda. Accordingly this rejection is traversed and reconsideration is respectfully requested.

The invention as defined by claim 1, from which claims 2 and 4-7 depend, is directed towards a steel processing material for addition into a heat of steel in an electric arc furnace including from about 5% to about 30% of a dried post combustion material recycled from the drop out box of an electric arc furnace and from about 70% to about 95% of a slag foaming material.

The invention, as defined by claim 26 is directed towards a steel processing material, at least partially recycled from an electric arc furnace, including a post combustion material having less than 2% moisture by weight and recycled from the drop out box of an electric arc furnace and a slag foaming material, wherein the steel processing material contributes to the foaming of slag when added to a heat of steel in an electric arc furnace and reacts with the

heat to recover iron from the post combustion material to the heat, further wherein less than about 1% by weight of the total iron in the heat being recovered is iron.

Claim 30 is directed toward a steel processing material for addition into a heat of steel in an electric arc furnace having from about 5% to about 30% of a dried post combustion material recycled from the drop out box of an electric arc furnace and from about 70% to about 95% of a slag forming material, wherein the recovery of iron from the steel processing material is only a portion of the iron in the heat.

In order for references to be relied upon to support a rejection under 35 U.S.C. § 103 they must provide an enabling disclosure, i.e., they must place the claimed invention in the possession of the public. *Glaxo Inc. v. Novopharm Ltd.*, 34 U.S.P.Q.2d, 1565 (Fed. Cir. 1995); *In re Payne*, 203 U.S.P.Q. 245 (CCPA 1979). Applicant finds no teaching or suggestion by Calderon et al, alone or in combination with, Lehner et al or Maeda of a steel processing material as set forth by independent claims 1, 26 or 30. For example, in regards to claims 1 and 30, Calderon et al fail to teach from about 5% to about 30% of a post combustion material recycled form the drop out box of an electric arc furnace. In fact, Calderon et al teach away from using electric arc furnaces due to the ineffectiveness and high cost of operating them (column 1, lines 50-60). Moreover, Applicants find no teaching or suggestion by Lehner et al or Maeda to account for the deficiencies of Calderon et al, and Lehner et al or Maeda have not been cited in the Office Action for such purposes. As such, Calderon et al alone or in the argued combination with Lehner et al or Maeda fail to teach the presently claimed steel processing materials as set forth in claims 1 and 30.

In addition, claim 26 is not taught or suggested by Calderon et al alone or in combination with Lehner et al or Maeda. Claim 26 recites that the steel processing material includes a post combustion material having less than 2% moisture by weight recycled from

Serial No. 09/909,487

Amendment dated August 25, 2005

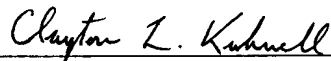
Reply to Official Action of February 25, 2005

the drop out box of the electric arc furnace. As previously asserted, Calderon et al fail to teach such steel processing materials. Once again, Applicants find no teaching or suggestion in Lehner et al or Maeda to make up for the deficiencies of Calderon et al. Lehner et al discloses dehydrating sludge with a quick lime material prior to recycling, but does not teach the use of post combustion material recycled from the drop out box to have less than 2% moisture by weight. Maeda also fails to teach post combustion material recycled from the drop out box having less than 2% moisture by weight. As such, Calderon et al alone or in the argued combination with Lehner et al or Maeda fail to teach the presently claimed steel processing materials as set forth in claim 26.

It is therefore submitted, that the presently claimed steel processing materials as defined by claims 1-2, 4-7, 26 and 30 are non-obvious over and patentably distinguishable from Calderon et al in view of Lehner et al or in view of Maeda whereby the rejection under 35 U.S.C. §103 has been overcome. Reconsideration is respectfully requested.

It is believed that the above represents a complete response to the Examiner's objections and rejections under 35 U.S.C. §§ 103 and 112, first paragraph, and places the present application in condition for allowance. Reconsideration and an early allowance are respectfully requested.

Respectfully submitted,



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